



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D3391-023
Job Sheet 183837

Part No: D3391-023

Job Qty: 1 ea

Part Name: Mid Tube Assembly



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 9/27/18

Job Tracking No:

Due Date: 11/8/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG REV J SHEET 2 and 7 IPP A 05.10.20 New Issue KJ/EC IPP B IPP C 07.03.20 rev F dwg EC IPP D 07.03.28 re-format EC IPP E 07.10.31 ecn 1053P EC IPP Rev:F ECN 1056 07-11-13 DD verified by: EC IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC IPP Rev: I 08-11-13 Removed steps per w/o, QC KJ verified by: ec IPP Rev:J add in seq 140 expire date &b# sikaflex DD 10.02.17 verified by:EC

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		11/8/18	0.00	0.00	Start Up Skidtubes-1		JS
100	Skidtubes	1 pcs		11/8/18	0.88	2.11	Skidtubes-4		JS DAS
110	QC	1 pcs		11/8/18	0.00	0.00	QC5		38
120	HandFinish	1 pcs		11/8/18	0.00	0.38	HandFinish1		D.R 18/10/17
130	QC	1 pcs		11/8/18	0.00	0.00	QC7-2		MAG
140	Skidtubes	1 pcs		11/8/18	0.00	2.11	Skidtubes-4		MAG
150	QC	1 pcs		11/8/18	0.00	0.00	QC5		BE
160	Skidtubes	1 pcs		11/8/18	0.00	2.11	Skidtubes-4		BE DAS
170	QC	1 pcs		11/8/18	0.00	0.00	QC10		38 DAS
180	QC	1 pcs		11/8/18	0.00	0.00	QC5		9-89 38
185	HandFinish	1 pcs		11/8/18	0.00	0.38	HandFinish2		D.R 18/10/23
191	SprayPaint	1 pcs		11/8/18	0.00	0.91	Spray Paint		BNCA
192	Outsource	1 pcs		11/8/18			ATE003-VC		OCT 2 5 2018
193	Packaging	1 pcs		11/8/18	0.00	0.00	Packaging2		OCT 2 6 2018
200	QC	1 pcs		11/8/18	0.00	0.00	QC14		18-10-31
230	HandFinish	1 pcs		11/8/18	0.00	0.38	HandFinish4		18-10-31
240	QC	1 pcs		11/8/18	0.00	0.00	QC5		NOV 0 1 2018 68
250	Packaging	1 pcs		11/8/18	0.00	0.00	Packaging3-1		NOV 0 2 2018
260	QC21-SA	1 Ea		11/8/18	0.00	0.00	QC21		NOV 0 2 2018

Part Op 100 - 1-Cut tube to finish length as per Dwg D3391 2-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1.
Descriptions: fwd saddle hole on one side only as per Dwg D3391 3-Open aft saddles and GHW holes to Ø0.4375" except for fwd saddle
holes 4-Remove .030" from Fwd indexing Ridge as per Dwg D3391 5-Remove indexing ridge on Fwd & Aft end of
skidtube as per Dwg D3391 6-Deburr, scibe batch # on aft end. 7- Locate D3391-021 in D3391-023 at 9.00" (see view
F-F) 8- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149
locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer
drilled pilot holes in D3391-023/-021 using drill press. ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to
0.500" as per ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". D3391-021
BATCH: 9- Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.375" holes with paint marker,
DO NOT DRILL HOLES #3-19-20 FROM FWD END OF JIG Locating from two fwd wearplate holes in D3391-023
drill remaining 6 wearplate holes in D3391-021 using DT8937 10- Open wearplate holes of D3391-023 assembly detail
section Q-Q to Ø0.375" (10 holes) as per Dwg D3391 Open wearplate holes of D3391-023 assembly detail section H-H to

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐																				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :																							
Misidentified ☐	Past Due ☐																								

Ø0.297" (20 holes) as per Dwg D3391 Deburr and blow out all chips from inside tube, scribe

140 - 1-Open float bag holes as per dwg 2-C'sink float bag holes as per dwg 3- Prepare tube for welding 4-Bond web in place as per Dwg D3391 & QSI 015. Adhere for 12 hours) A/R Sikaflex exp: 19-03-06 batch#: m138943

NOTE: ENSURE WEB IS INSERTED IN AFT END OF TUBE

160 - 1-Weld crossbolt spacer as per dwg D3391 & QSI 004 2-grind weld flush

185 - Re-alodine

191 - PRIME AS PER DWG AND QSI005 4.2.1.3.3 PRIMER BATCH: _____ PAINT AS PER DWG AND QSI005 4.2.2.4 PAINT: _____

230 - 1-Install Inserts as per Dwg

192: Outsource - P0041452

Job BOM

006192

Part / Item	Component Name	Quantity	Operation	Container
D2500-1-100	Skidtube Extrusion	1 Ea (1 ea)	90-Start up Operation	163853
D3389-1	Web	1 Ea (1 ea)	140-Skidtubes	5117/02
D3681-1	Spacer	5 Ea (5 ea)	160-Skidtubes	5103210
ALS4-1032-130	Rivnut	20 Ea (20 ea)	230-HandFinish	5007279
D3591-1	Bushing	2 Ea (2 ea)	230-HandFinish	5122431

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2500-1-100	1	40	0
140-Skidtubes	D3389-1	1	15	0
160-Skidtubes	D3681-1	5	202	0
230-HandFinish	ALS4-1032-130	20	12,106	0
	D3591-1	2	11	0

Part Specifications



Container No: S115339



Part: D3391 - 023

Job No: 183837

Serial No/Batch: S115339

Revision: J

Inspector:

Exp Date:

Instructions: Various STC's

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

PM Dart.lajeunesse.marie

Date: 10/26/18

DQA: _____ Date: _____

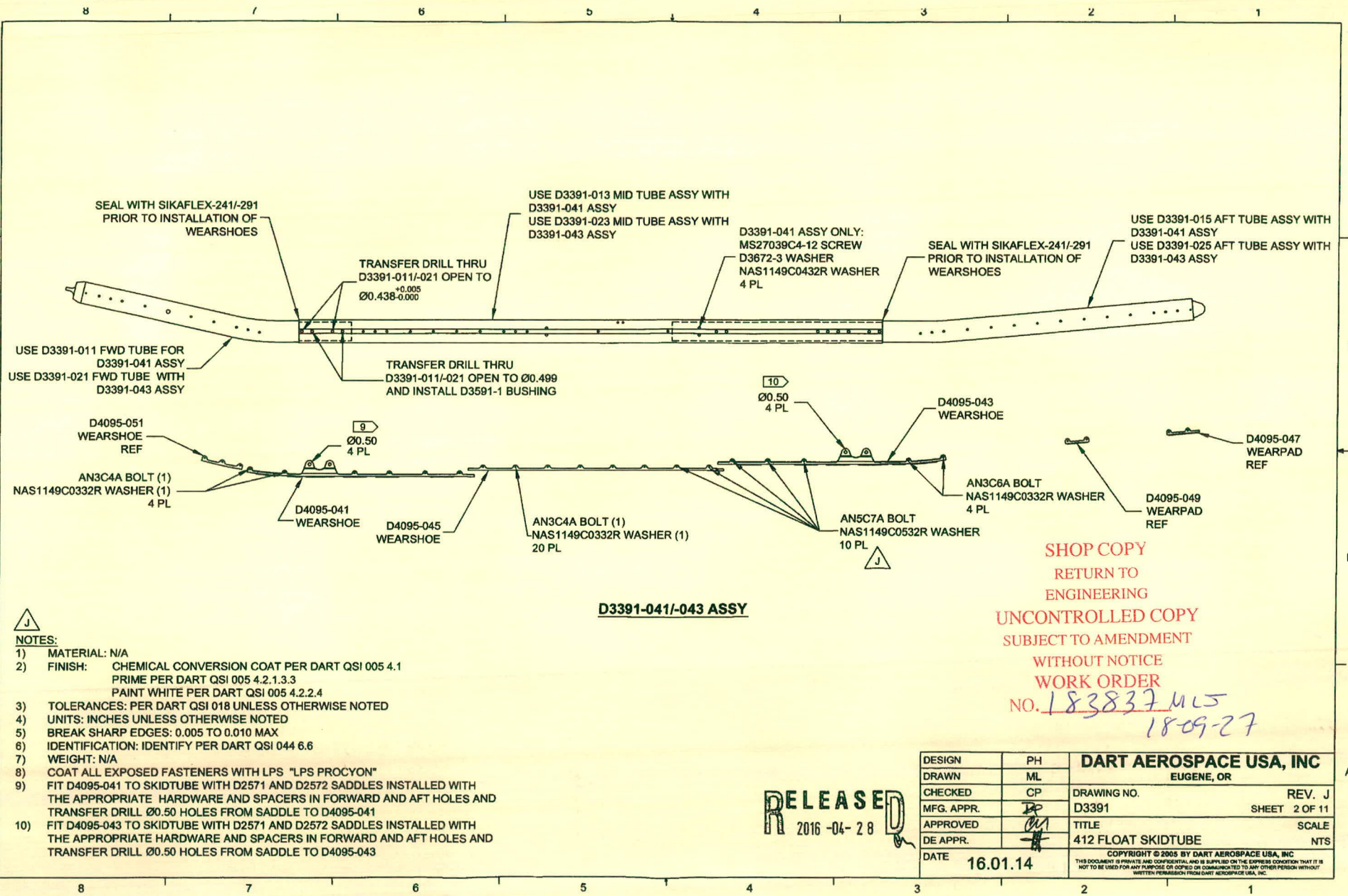


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
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Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
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LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



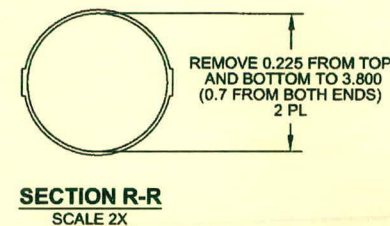
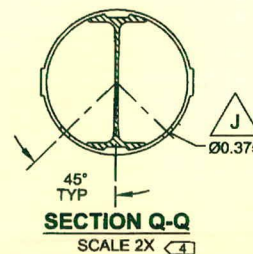
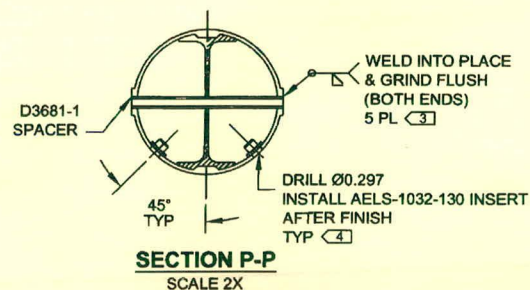
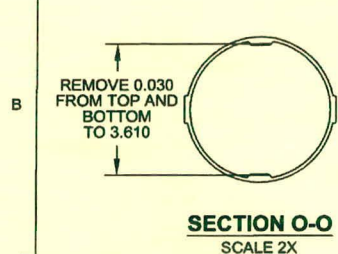
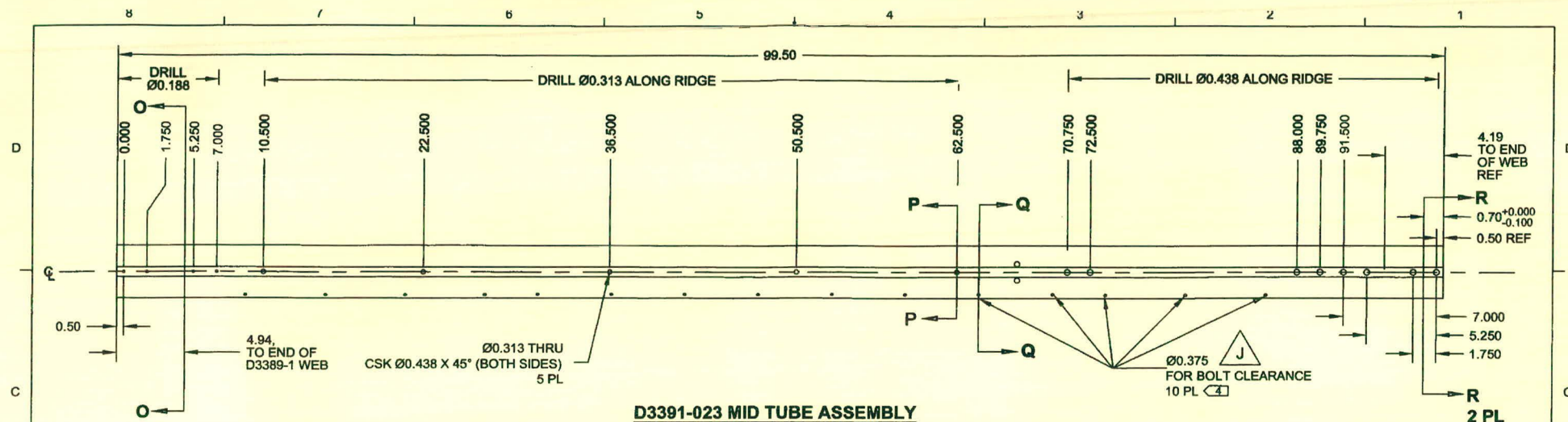
D3391-041/-043 ASSY

- NOTES:**
- 1) MATERIAL: N/A
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME PER DART QSI 005 4.2.1.3.3
PAINT WHITE PER DART QSI 005 4.2.2.4
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY PER DART QSI 044 6.6
 - 7) WEIGHT: N/A
 - 8) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
 - 9) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
 - 10) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

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WITHOUT NOTICE
WORK ORDER
NO. 183837 ML5
1809-27

RELEASED
2016-04-28

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	DP	D3391	SHEET 2 OF 11
APPROVED	DP	TITLE	SCALE
DE APPR.	DP	412 FLOAT SKIDTUBE	NTS
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D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY -023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT



D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	<i>CP</i>	D3391	SHEET 7 OF 11
APPROVED	<i>CP</i>	TITLE	SCALE
DE APPR.	<i>ML</i>	412 FLOAT SKIDTUBE	NTS
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RELEASED
2016-04-28



Dart Aerospace Ltd. —
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041452

Supplier: ATE003-VC
Atelier Debosselage
358 Principale
Calumet
QC
J0V 1B0 Canada
Phone: 819 242 5633

PO No: PO041452
PO Date: 10/25/18
Due Date: 10/30/18
**Purchase Order
Revision:**
Revision Date:
Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	183837	D3391-023	Mid Tube Assembly : Various STC's	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	183839		X OCT 2 6 2018	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	183840		X OCT 2 6 2018	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	176069		X OCT 2 6 2018	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	183836		X OCT 2 6 2018	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	183838		X OCT 2 6 2018	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	176042		X OCT 2 6 2018	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	183841		X OCT 2 6 2018	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
Sub Total:							8	0	8		\$1,000.00

Grand Total: \$1,000.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retension of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 10/25/18 10:19 AM dart.tsimiklis.chrisoula

